

UNCLASSIFIED

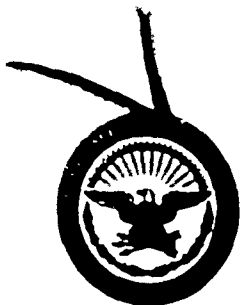
AD NUMBER
AD891222
NEW LIMITATION CHANGE
TO Approved for public release, distribution unlimited
FROM Distribution authorized to U.S. Gov't. agencies and their contractors; Administrative/Operational Use; 30 DEC 1971. Other requests shall be referred to Assistant Chief of Staff for Force Development [Army], Washington, DC 20310.
AUTHORITY
AGO ltr, 29 Apr 1980

THIS PAGE IS UNCLASSIFIED

**THIS REPORT HAS BEEN DELIMITED  
AND CLEARED FOR PUBLIC RELEASE  
UNDER DOD DIRECTIVE 5200.20 AND  
NO RESTRICTIONS ARE IMPOSED UPON  
ITS USE AND DISCLOSURE.**

**DISTRIBUTION STATEMENT A**

**APPROVED FOR PUBLIC RELEASE,  
DISTRIBUTION UNLIMITED.**



DEPARTMENT OF THE ARMY  
OFFICE OF THE ADJUTANT GENERAL  
WASHINGTON, D.C. 20310

DAAG-PAP-A (M) (6 Jan 72)

DAFD-OTT

18 January 1972

SUBJECT: Operational Reports - Lessons Learned, Hqs. 299th Engr Bn, 20th Engr Bde, 593 Engr Bn, 92d Engr Bn, Period Ending 30 Apr 1971 (U)

SEE DISTRIBUTION

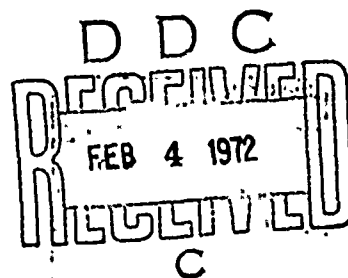
AD 891222

1. Section 2 of reports, subject as above, are forwarded for review and evaluation in accordance with para 4b, AR 525-15.
2. The information contained in these reports is provided to insure that lessons learned during current operations are used to the benefit of future operations and may be adapted for use in developing training material.
3. Information of actions initiated as a result of your evaluation should be forwarded to the Assistant Chief of Staff for Force Development, ATTN: DAFD-OTT, within 90 days of receipt of this letter.
4. As Section 1 of subject reports are not pertinent to the Lessons Learned program, they have been omitted.

BY ORDER OF THE SECRETARY OF THE ARMY:

AD No. \_\_\_\_\_  
DDC FILE COPY

*Verne L. Bowers*  
VERNE L. BOWERS  
Major General, USA  
The Adjutant General



4 Incl

1. DAFD-OTT 711226
2. DAFD-OTT 711047
3. DAFD-OTT 711161
4. DAFD-OTT 711100

DISTRIBUTION:

Commanding Generals

US Continental Army Command  
US Army Combat Developments Command  
US Army Materiel Command

Commandants

US Army Engineer School  
US Army Signal School

Protective marking cancelled when  
separated from inclosure.

UNCLASSIFIED REPORT  
DISTRIBUTION LIMITED TO U.S. GOV'T. AGENCIES ONLY;  
TEST AND EVALUATION; 23 Dec 71. OTHER REQUEST  
FOR THIS DOCUMENT MUST BE REFERRED TO THE ASSIS-  
TANT CHIEF OF STAFF FOR FORCE DEVELOPMENT (ARMY)  
ATTN: FOR OT UT, WASHINGTON, D. C. 20310

FOR OFFICIAL USE ONLY

38.

2

Copies furnished:

- Office, Chief of Staff, US Army (DWSA)
- Deputy Chiefs of Staff
- Chief of Research and Development
- Assistant Chiefs of Staff
- Chief of Engineers
- The Provost Marshal General
- Commanders in Chief
  - US Army, Europe
  - US Readiness Command
- Commanding Generals
  - US Army Alaska
- Commander, US Army Forces Southern Command
- Commandant of the Marine Corps
- Defense Documentation Center
- Commanding Officers
  - US Army Construction Engineering Research Laboratory
  - US Army Land Warfare Laboratory
  - US Army Logistics Doctrine, Systems & Readiness Agency
  - US Army Mobility Equipment Research & Development Center

ACCESSION FOR	
CFSTI	WHITE SECTION <input type="checkbox"/>
DDC	DIFF SECTION <input checked="" type="checkbox"/>
UNANNOUNCED	<input type="checkbox"/>
JUSTIFICATION.....	
BY.....	
DISTRIBUTION/AVAILABILITY CODES	
DIST.	AVAIL. and/or SPECIAL
B	

FOR OFFICIAL USE ONLY

2  
EGCD-OP

30 April 1971

SUBJECT: Operational Report - Lessons Learned, 299th Engineer Battalion  
(C), Period Ending 30 April 1971, RCE CSFOR 65 - (R3)

2. Lessons Learned: Commander's Observations, Evaluations, and Recommendations.

a. Personnel:

(1) Use of Hard Drugs

(a) OBSERVATION: The foremost problem in the personnel area was the increase in the use of hard drugs. While not unique in this increase, the problems that arose were none the less relatively new to those in supervisory capacities. Corrective actions consumed a considerable amount of supervision and time.

(b) EVALUATION: Due to the relative newness of the problem, most efforts by medical, legal, and military authorities failed to rectify the problems satisfactorily. Medical facilities for rehabilitation were scarce and the drug amnesty program was generally ineffective. Difficulties in obtaining substantial evidence with which to prosecute known drug users and the agonizing long period of time required to complete

DAFD-OTT  
711226  
Incl 1

FOR OFFICIAL USE ONLY

EGCD-OP

30 April 1971

SUBJECT: Operational Report - Lessons Learned, 299th Engineer Battalion  
(C), Period Ending 30 April 1971, RCS CSFOR - 65 (R3)

administrative and disciplinary action were a constant source of poor morale among the men. In order to make every attempt to rehabilitate drug users, units were required to devote many hours in special supervision for their personnel. This factor often resulted in reduced effort for operational requirements.

(c) RECOMMENDATIONS: That medical facilities to treat drug users be drastically expanded and that administrative procedures for separation under AR 635-212 be streamlined and expedited at all echelons of command.

(d) COMMAND ACTION: See (b) above.

b. Intelligence: None

c. Operations:

(1) Safety when working cranes

(a) OBSERVATION: While working with cranes, the use of tag lines to guide a load is a simple but often overlooked safety procedure.

(b) EVALUATION: Tag lines should be used at all times when lifting and guiding a load with a crane. Often it is much quicker to avoid doing it and guiding the load by hand. This; however, is an extremely dangerous act and can result in serious accidents, some fatal.

(c) RECOMMENDATION: Supervisors should insure that a few extra minutes are taken to attach a tag line to a load prior to lifting.

(d) COMMAND ACTION: Safety Policy and SOP was revised to specifically require the use of tag lines when working with cranes.

(2) Maintenance of Equipment in Coastal Areas

(a) OBSERVATION: Rust and corrosion of equipment occurs more frequently in a coastal area.

(b) EVALUATION: As a result of the corrosive action of salt water and salt air in coastal areas, equipment tends to rust and corrode more frequently. Increased frequency of washings and lubrications should be implemented to protect equipment in this environment.

(c) RECOMMENDATION: Supervisors should insure that all equipment working in coastal areas be washed frequently (daily if possible) and lubrication be performed at other times beside normally scheduled services.

(d) COMMAND ACTION: Fresh water washing facilities were provided for washing collected salt from vehicles. Wash intervals were changed to daily and lube intervals were changed to weekly.

30 April 1971

SUBJECT: Operational Report - Lessons Learned, 298th Engineer Battalion  
(C), Period Ending 30 April 1971, RCS CSFOR - 65 (R3)

(3) Expedient Winching Method for Extracting a Mired Dozer

(a) OBSERVATION: D7E dozers with a winching capability can usually extract themselves when stuck if a sufficient deadman is available.

(b) EVALUATION: A Scooploader can be used to dig an inclined plane into the earth with respect to the dozer and positioned in the hole to act as a deadman for the dozer from which to winch.

(c) RECOMMENDATIONS: This method can be utilized successfully when other more direct methods fail.

(d) COMMAND ACTION: This unit has adopted this procedure as an expedient method for freeing mired dozers.

(4) Construction of MSA1 Aircraft Revetments

(a) OBSERVATION: Simplicity of construction has been a problem when building aircraft revetments. It was found that by using #6 reinforcement bars and MSA1 matting that construction time would be cut in half.

(b) EVALUATION: The use of these materials eliminated a great deal of welding time plus the necessity of driving pickets around the revetments. This method of construction also made it possible to move or dismantle the revetments at a later time. Design calls for removing the two outside piers of the male end of the MSA1 matting and inserting a U-shaped rebar cross-tie in the top hole of the one piece of matting and in the bottom hole of the corresponding opposite piece forming a rigid X. The X braces are placed at each joint of matting while the remaining two pins are driven through to the female end of the adjoining piece of matting. End walls are constructed by placing matting on end in sufficient quantity to contain the fill. The revetment can be easily moved by lifting each end in turn with a crane until all fill material spills out the bottom, disassembling U-shaped X braces, transporting to new site where reassembly and fill operations take place. The revetments are erected quickly and require little or no maintenance if the earth fill is primed with soil stabilizer after construction.

(c) RECOMMENDATION: That this method be adopted as a highly effective expedient revetment and be included as an authorized design in the standard design construction plans for revetment construction.

(d) COMMAND ACTION: Prior to publishing of USAECV's standard design for helicopter revetments, the method of construction described above was utilized. Requirements to comply with standard designs have prohibited us of the effective expedient method.

(5) Pothole Repair During Monsoon Weather

(a) OBSERVATION: While doing pothole repair, it was discovered that excessive amounts of water had percolated through the existing base course. This percolating effect had caused an upward pressure on the road surface

30 April 1971

SUBJECT: Operational Report - Lessons Learned, 299th Engineer Battalion  
(C), Period Ending 30 April 1971, RGS CSFOR - 55 (R3)

resulting in severe cracking and buckling of the road.

(b) EVALUATION: Due to severe monsoon rains the percolating effect of the water was much greater than normal. An inspection of the damaged section of the road revealed that had more attention initially been given to providing adequate drainage and a deeper base course, damage due to percolation could have been avoided.

(c) RECOMMENDATION: In areas where heavy monsoon rains can be expected, roads should be constructed with a deeper than normal base course and adequate drainage structure should be provided.

(d) COMMAND ACTION: Because this observation is primarily an after the fact discovery of an error made in initial road construction by another unit, command action is limited in scope. However, information has been disseminated to preclude the same error in future construction.

(6) Soil Stabilization Using Cement

(a) OBSERVATION: Cement can be used as an effective expedient soil stabilizer in place of gravel.

(b) EVALUATION: The use of cement to stabilize a soft sandy soil can save hauling time. The cement is spread and mixed on the area which needs stabilizing and rolled with a sheepfoot roller.

(c) RECOMMENDATION: That this method be used as an expedient method when time is short or hauling assets are limited.

(d) COMMAND ACTION: This method of stabilization has been adopted by this unit for standard use, especially in sandy areas.

(7) Chinook Emplacement of Arch Culvert Sections

(a) OBSERVATION: Chinooks may be used as a quick way to transport arch culvert sections to locations with limited accessibility. It has been observed that care should be exercised to avoid metal failure along the rim of the culvert where the clevises from the slings are placed through the bolt holes.

(b) EVALUATION: An inspection should be made to insure sufficient thickness is available where each clevis is attached through the bolt holes of the culvert. This metal thickness is critical with respect to the dynamic stress caused by weight displacement as the culvert is lifted by the helicopter.

(c) RECOMMENDATION: Care should be exercised in lifting arch culverts using clevis attachments to insure at least a four point sling is utilized for sections greater than ten feet in length. This will

FOR OFFICIAL USE ONLY



EGCD-OP

30 April 1971

SUBJECT: Operational Report - Lessons Learned, 299th Engineer Battalion  
(C), Period Ending 30 April 1971, RCS CSFOR - 65 (R3)

sufficiently reduce the dynamic stress at each attachment.

(d) COMMAND ACTION: A four point sling is utilized by this command when transporting arch culverts by Chinook.

d. Organization:

(1) Operations Section for Combat Engineer Company

(a) OBSERVATION: MTOE 5-37GP501 does not make provisions for an operations section in the Combat Engineer Company.

(b) EVALUATION: The inordinately large Area of Operation's of the Battalion's line units necessitated their establishment of an operations section to control projects and equipment and to render reports. Units assigned a Sergeant E-5 and a clerk to handle all operational requirements. This section proved to be highly successful.

(c) RECOMMENDATION: That the basic TOE 5-37G be modified to include an Operations Sergeant and one clerk to handle operational requirements.

(d) COMMAND ACTION: See (b) above.

e. Training:

(1) ARVN Training:

(a) OBSERVATION: U.S. operators should be cognizant of the importance of training ARVN operators.

(b) EVALUATIONS: Any operator assigned to a vehicle in which an ARVN soldier is training should have the importance of this operation stressed to him. The ARVN, who was paired with a U. S. operator that was interested in the training, graduated at much higher proficiency level.

(c) RECOMMENDATION: Stress the importance of ARVN Training to operators and supervisors.

(d) COMMAND ACTION: This battalion uses only highly motivated personnel to train ARVN personnel.

f. Logistics:

(1) Stockpiling of Bridge Parts for Emergency Bridge Repair

(a) OBSERVATION: Effective emergency bridge repair requires that the correct amount of bridging components be quickly located and loaded. Often locating and loading of bridge components is done at night and

30 April 1971

SUBJECT: Operational Report - Lessons Learned, 299th Engineer Battalion  
(C), Period Ending 30 April 1971, RCS CSFOR - 65 (R3)

confusion results as to numbers and types of components to be loaded.

(b) EVALUATION: A system of stockpiling bridge parts so as to relieve the work of ascertaining numbers of each type component necessary to complete a certain size bridge, would save time and mistakes. Such a system would be to stockpile the bridge by bays. All parts necessary to complete one bay would be placed in one stockpile. Personnel responsible for loading would then merely have to know how many bays to load and load that number of stockpiles plus erection equipment. Sandbags can be utilized to store sufficient numbers of small parts (pins, clips, etc).

(c) RECOMMENDATION: That units responsible for emergency bridge repair consider stockpiling bridge components in a manner such as one suggested above.

(d) COMMAND ACTION: Bridge assets of the battalion are stored in the above detailed manner.

g. Communications:

(1) Radio Repair Parts

(a) OBSERVATIONS: The practice of using substitute repair radio parts and local fabrications in the face of critical shortages of authorized spare parts can decrease equipment operational deadline totals.

(b) EVALUATION: The temporary use of an interchangeable repair parts (i.e. tubes, relays, modules, etc.) can often restore a significant portion of deadlined radio equipment to an operational condition. Prior to accomplishing the substitution, careful investigation must be made of the specifications of the equipment so as to not damage internal mechanisms of the equipment.

(c) RECOMMENDATION: That this practice be used only for emergency requirements.

(d) COMMAND ACTION: Procedure instituted to insure that when a critical radio shortage exists, all non-operational radios are channeled through the battalion communications section to provide assets for controlled substitution prior to evacuation to direct support maintenance.

(2) Maintenance of Radio Antennas

(a) OBSERVATION: Joints on radio antennas are freezing up.

(b) EVALUATION: Due to the higher humidity and corrosive properties of the air in a tropical climate, joints on vehicle radio antennas tend to corrode, and freeze, rendering them impossible to separate and results in damaged equipment.

FOR OFFICIAL USE ONLY

NOT REPRODUCIBLE

EGCD-OP

30 April 1971

SUBJECT: Operational Report - Lessons Learned, 299th Engineer Battalion (C), Period Ending 30 April 1971, RGS CSFOR - 65 (R3)

(c) RECOMMENDATION: That each joint be separated and cleaned weekly.

(d) COMMAND ACTION: This procedure for maintenance of antennas has been integrated into the weekly maintenance day programs.

(3) Heat Protection for Radio Sets

(a) OBSERVATION: Several radios have failed due to overheating.

(b) EVALUATION: Radios should be shielded from the direct rays of the sun and sited to insure free circulation of air around the sets whenever possible.

(c) RECOMMENDATION: Radio sets which fail in operation should be allowed to cool several hours, and then be tested again for satisfactory operation prior to evacuation to a higher echelon of repair.

(d) COMMAND ACTION: Procedure in para. (c) has been adopted.

(4) Field Expedient Use of AT-292

(a) OBSERVATION: AT-292 antennas often have to be set up for a short time at a relay site.

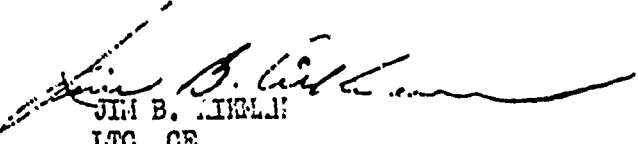
(b) EVALUATION: By using less than seven mast sections and by driving the mast stake just under the front bumper of a vehicle, the mast can be supported without the use of guy wires. Slip the mast through the lifting shackle on the front bumper and onto the mast stake. This procedure works very satisfactorily in winds up to 20 MPH.

(c) RECOMMENDATION: That this procedure be utilized for short period use of AT-292.

(d) COMMAND ACTION: Procedure adopted as stated.

h. Material: None

i. Other: None

  
JIM B. LIHELLI  
LTC, CE  
COORDINATING

NOT REPRODUCIBLE

//  
BCEGA-C (30 April 1971) 1st Ind

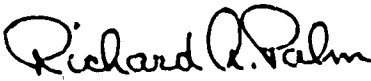
SUBJECT: Operational Report-Lessons Learned of the 299th Engineer  
Battalion (CBT) Period Ending 30 April 1971, RUS CSFOR-65 (R3)

DA, Headquarters 35th Engineer Group (Const) APO 96312, 9 June 1971

TO: Commanding General, United States Army Engineer Command, Vietnam  
ATTN: AVCC-MO APO 96491

This headquarters has reviewed the Operational Report-Lessons Learned for  
the period ending, 30 April 1971 from the 299th Engineer Battalion (CBT)  
and concurs with the comments and observations of the Commander.

FOR THE COMMANDER:

  
RICHARD A. PALM  
CPT, CE  
Adjutant

12

AVCC-10 (30 Apr 71) 2nd Ind  
SUBJECT: Operational Report - Lessons Learned, 299th Engineer Battalion  
(Combat), Period Ending 30 April 1971, RCS USFOR - 65 (R).

HQ US Army Engineer Command Vietnam, AFO 90491 15 JUN 1971

TO: Commanding General, US Army Vietnam, ATTN: AVHDO-DO, AFO 90375

1. The significant activities and lessons learned have been reviewed and are an adequate reflection of the units operation during this period.
2. Reference item concerning "Safety with Cranes", page 7, paragraph 1c (1). Concur. Additionally proper maintenance and storage of these lines will be stressed within this headquarters. No action by USARVAC or DA is recommended.
3. Reference item concerning "Expedient Winching Methods for Extracting Wired Dozers", page 8, paragraph 2c (3). Recommend this procedure be used only in emergency situations. An effective log deadman could be installed in the same comparative time as this procedure, and the possibility of damaging a scooploader would be avoided. No action by USARVAC or DA is recommended.
4. Reference item concerning "Construction of M8A1 Aircraft Revetments", page 9, paragraph 2c (4). The design is an acceptable expedient design although it should be noted that the minimum width should be four feet and the maximum height limited to three sections of M8A1 steel mat (about five feet). The width and height limitation are necessary for stability since the revetment merely rests on the ground. The major disadvantage of this design are the height limitations and large amount of fill required. No action by USARVAC or DA is recommended.
5. Reference item concerning "Operations Section for Combat Engineer Company", page 10, paragraph 2d (1). Nonconcur. The recommendation that the basic TOE 5-57G be modified to include an Operations Sergeant and one clerk to handle operational requirements is considered to be invalid for all units organized under this TOE. It is true that an Operations Sergeant is not provided in the TOE. The TOE of a Combat Engineer Company does authorize three administrative type enlisted personnel, an E-8 First Sergeant and two clerks, one E-5 and one E-4, in addition to an Executive Officer. Under normal conditions these personnel would carry out the duties of an operations section under the guidance of the Company Commander. If abnormal circumstances prevail, as they apparently did in this unit's case with a large area of responsibility, and the Company Commander desires an operations section, one may be formed from assets within the subordinate platoons of the unit.
6. Reference item concerning "ANVN Training", page 10, paragraph 3. Concur with comments. Item can be included in weekly Command Information. A one hour class added to replacement training in July 70 covers "Why Vietnam" and our role as pertains to Vietnamization. No action by USARVAC or DA is recommended.

B  
AVCC-MO

SUBJECT: Operational Report - Lessons Learned, 299th Engineer Battalion  
(Combat), Period Ending 30 April 1971, RCS CUFOR - 05 (R3).

7. Reference item concerning "Radio Repair Parts", page 10, paragraph 2g (1). Concur, providing extreme care is taken in insuring that substitute items are positively identified by qualified personnel to be an acceptable substitute item. Substitution of a mismatching part could cause damage of a much more serious nature than originally encountered. No action by USARPAC or DA is recommended.

8. Reference item concerning "Maintenance of Radio Antennas", page 11, paragraph 2g (2). Concur. Cleaning of radio antennas is a normal weekly preventative maintenance procedure (see appropriate TM). In conditions of exposure to extreme heat, humidity, rain and dirt, antennas (and the radios themselves) should be cleaned much more frequently. No action by USARPAC or DA is recommended.

9. Reference item concerning "Field Expedient use of AT-292", (RC-292) page 11 paragraph 2g (4). Concur. Using personnel should understand, however, and be willing to accept, a somewhat reduced range of the radios concerned. This is due to increased propagation loss caused by reducing the elevation of the antenna above the ground. No action by USARPAC or DA is recommended.

FOR THE COMMANDER:

*Charles M. Peterson*  
for CHARLES M. PETERSON  
1LT, CE  
Act Asst Adjutant General

AVHDO-DO (30 Apr 71) 3rd Ind

SUBJECT: Operational Report-Lessons Learned, 299th Engineer Battalion  
(C), Period Ending 30 April 1971, RCS CSFOR-65 (R3)

Headquarters, United States Army Vietnam, APO San Francisco 96375 10 AUG 1971

TO: Commander in Chief, United States Army Pacific, ATTN: GPOP-FD  
APO 96558

This Headquarters has reviewed the Operational Report-Lessons Learned for the period ending 30 April 1971 from Headquarters, 299th Engineer Battalion and concurs with comments of indorsing headquarters.

FOR THE COMMANDER:



J. L. CHILDRESS

CPT AGC

ASSISTANT ADJUTANT GENERAL

15  
GPOP-FD (30 Apr 71) 4th Ind  
SUBJECT: Operational Report-Lessons Learned, 299th  
Engineer Battalion (C), Period Ending 30 April 1971,  
RCS CSFOR-65 (R3)

HQ, US Army, Pacific, APO San Francisco 96558

17 SEP 1971

TO: HQ DA (DAFD-ZA), WASH DC 20310

This headquarters concurs in subject report as indorsed.

FOR THE COMMANDER IN CHIEF:

*M. L. Mah*

M. L. MAH  
1LT, AGC  
Asst AG



17 AVBI-OS

25 April 1971

SUBJECT: Operational Report - Lessons Learned of Headquarters, 20th Engineer Brigade for Period 1 November 1970 - 15 April 1971, RCS, CSFOR-65(RZ)

## SECTION II - LESSONS LEARNED

1. Command - None.

2. Personnel and Administration

a. Assistance-in-kind (AIK) Funds and Daily Hire Local Nationals(DHLN).

OBSERVATION: On several occasions (primarily in the 34th Engineer Group) mission accomplishment was hampered because the AIK allocation was in danger of being overdrawn or the AIK Fund Custodian was required to travel to Long Binh to draw additional funds.

EVALUATION: Daily Hire Local Nationals are an extremely valuable and economic source of manpower. In each Engineer Group there are numerous projects which, for economic reasons alone, dictate maximum utilization of DHLN personnel.

RECOMMENDATION: That the AIK Fund Program be modified to provide for:

(1) Simplification of the administrative processes which would allow the using commander to deal directly with the approval authority.

(2) Authorize a "Class B Agent" at battalion level.

(3) Allow for a higher Imprest Fund ceiling.

b. Local National Direct Hire (LNDH).

OBSERVATION: As engineer troop strengths are drawn down with

DAFD-OTT  
711047  
Incl 2

FOR OFFICIAL USE ONLY

16



AVBI-OS

25 April 1971

SUBJECT: Operational Report - Lessons Learned of Headquarters, 20th Engineer Brigade for Period 1 November 1970 - 15 April 1971, RCS CSFOR-65(RZ)

continuing unit redeployments, the shortage of US manpower has affected our capability to accomplish some missions.

EVALUATION: To offset the loss of troop strength the use of LNDH has been found effective. This manpower source costs less than one-fifth as much as US Troop labor, it provides a continuity not available with the short tour turn around of US troops, and it fosters the nation building concept by teaching technical skills.

RECOMMENDATION: Maximum possible use of LNDH should be made for the reasons stated above. Every mission should be approached with the consideration of utilizing LNDH. Where possible (e.g. a Type B Construction Battalion) US troop spaces should be eliminated and replaced with LNDH on a permanent basis.

### 3. Operational Support Section - Standard Firebase Design

OBSERVATION: In building firebases, construction of heavy gun platforms varied according to the constructing unit, the customers and the weather.

EVALUATION: A standard heavy gun pad design for the brigade did not exist.

ACTION TAKEN: A heavy gun pad was designed for all-weather conditions and approved by 23d Arty Gp. This is now the IIFV (TRAC) Standard design for heavy gun pads. Its first application was at FSB Lanyard II.

### 4. Construction Operations Section

#### a. LOC Construction Sequence

OBSERVATION: In LOC construction a great deal of effort has been expended in completing the shoulders that were omitted or poorly done during initial construction. This has resulted in inordinate effort required to complete LOC routes to the point where they can be transferred to GVN.

EVALUATION: The reason the failure to construct shoulders initially developed was from a natural emphasis to get as much road surfaced as possible to serve the tactical units and the economy. More "miles paved" could be realized by deferring shoulder and drainage work and concentrating on the limits of the travelled way.

**FOR OFFICIAL USE ONLY**

17

AVBI-OS

SUBJECT: Operational Report - Lessons Learned of Headquarters, 20th Engineer Brigade for Period 1 November 1970 - 15 April 1971, RCS CSFOR-65(RZ)

RECOMMENDATION: Concentration on only the "miles paved" causes an increase in the overall effort to complete the road to meet turnover criteria. The complete road should be constructed in an orderly sequence to include shoulders and drainage and short increments (5 - 10 Km) should be inspected and transferred to the GVN as they are completed.

b. Quality Control

OBSERVATION: Quality control, especially in LOC construction, has been one of the biggest problems. The specifications for LOC construction were generally known at the higher command and staff levels, but the working supervisors (Company grades and NCO's) demonstrated limited knowledge.

EVALUATION: In developing a program to improve quality control, the reasons for poor quality control were defined as either lack of knowledge of proper specifications, lack of knowledge of techniques to meet specifications, or indifference.

RECOMMENDATION: In order to correct the lack of knowledge standard specifications must be published and must be read. Classes must be conducted down at the field supervisory level to explain specifications and techniques. A very successful program was initiated to put condensed specifications for specific types of work (i.e. paving, patching, DRST, etc) on a 3 x 5 card and require field supervisors to carry them at all times. This greatly reduced the "lack of knowledge" problems and the professional product resulting from improved quality control fostered a sense of pride that eliminated much of the indifference that had been noted.

5. Intelligence - None.

6. Communications - None.

7. Safety - None.

8. Logistics - MRE System

OBSERVATION: The depot supply system has difficulties in providing timely, dependable response to unit requisitions. Requisitions are submitted and disappear with no status provided, releases are unpredictable and slow or erratic in being returned, depot inventories are inaccurate and false material shortages or averages are depicted and routine handling of release documents adds several days or weeks to actual pickup of materials.

FOR OFFICIAL USE ONLY

1. VBI-00

25 April 1971

SUBJECT: Operational Report - Lessons Learned of Headquarters, 20th  
Engineer Brigade for Period 1 November 1970 - 15 April 1971,  
RCS CORG-65(RZ)

EVALUATION: USAICCV and USADLAI analyze these problems as the result of poor depot locations records, required inventory adjustments and past misuse of the supply system. Steps are being taken to improve depot service but in the interim units have had to provide on-the-spot expeditors to coordinate with ICCV commodity managers, search depot assets, hand carry requisitions when permitted, and hand carry high priority releases for warehouse pickup.

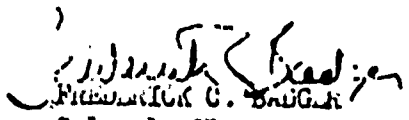
RECOMMENDATIONS: All units should continue to provide high quality expeditors who know the ICCV and depot systems in order to insure timely response to supply requirements. The Material Readiness Expeditor (MRE) is a critical link in the units supply capability and must act the part of an S-4 forward in the vicinity of the depot.

#### 9. Maintenance - Drill Expendables

OBSERVATION: In the past, drill expendables have been procured through supply channels as supply items.

EVALUATION: Much confusion has arisen as to who should order these items, supply or maintenance. There is often trouble determining whether or not a drill expendable is a repair part or a supply item. Also, repair part channels often respond more quickly to filling requisitions.

RECOMMENDATION: Suggest that all drill expendables be designated repair parts for easier identification and more expeditious procurement.

  
FREDERICK C. BAUGH  
Colonel, CE  
Deputy Commander

NOT REPRODUCIBLE

FOR OFFICIAL USE ONLY

2/  
AVCC-MO (25 Apr 71) 1st Ind  
SUBJECT: Operation Report - Lessons Learned, 20th Engineer Brigade,  
Period Ending 15 April 1971, RCS CSFOR - 65 (R3)

MAC, US Army Engineer Command Vietnam, APO 96491 13 MAY 1971

TO: Commanding General, United States Army Vietnam, ATTN: AVHDO-DO,  
APO 96375

1. The significant activities and lessons learned have been reviewed and are an adequate reflection of the unit's operations during this period.

2. Reference Section II - Lessons Learned, subparagraph d "Command Action". This paragraph was not added according to AR 525-15, dated 20 Nov 70. The 20th Engineer Brigade was inactivated 20 April 1971 and the above reference could not be added.

3. Reference item concerning "Assistance-in-kind (AIK) Funds and Daily Hire of local Nationals (DHLN)", page 13, paragraph 2a. Concur in part. Concur with recommendation (1) where the using commander may deal directly with the approving authority. This is currently in operation. The using commander may at any time call on the Programs and Budget Office, USAECV, which breaks out AIK daily hire funds for use by the Group commanders. Non-concur with recommendation (2) where a "Class B Agent" would be authorized at battalion level. A Class B Agent may only be located as low as a subordinate finance and accounting office. The AIK imprest fund custodian from the Group is the only individual who can deliver daily hire vouchers to the Class B Agent and exchange them for AIK funds. Concur with recommendation (3) to allow for a higher imprest fund ceiling. USARV Regulation 37-1, Appendix 1 requires that an imprest fund not exceed one-third of the quarterly authorization without prior approval of USARV and MACV. A request to increase the imprest fund as a percentage of the quarterly authorization that is properly substantiated should be sent to CG, USAECV, ATTN: AVCC-PB for indorsement to USARV and MACV. No action by USARPAC or DA is recommended.

4. Reference item concerning "Standard Firebase Design", page 14, paragraph 3. Concur. Standard design should be included in applicable FM's and TM's by appropriate Department of the Army Agencies.

5. Reference item concerning "LOC Construction Sequence", page 14, paragraph 4a. Concur. For nearly a year now, the emphasis has been placed on doing quality construction and completing all portions of small segments of road in a coordinated manner. The backlog of shoulder and drainage construction was created predominantly in prior years. The current emphasis on coordinated construction of complete roads is most efficient on resources. It insures

22  
AVCC-MO (25 April 1971) 1st Ind  
SUBJECT: Operation Report - Lessons Learned, 20th Engineer Brigade,  
Period Ending 15 April 1971, RCS CSFOR - 65 (R3)

that as rapidly as possible the subgrade is covered with base course, base course is surfaced, shoulders are constructed and surfaced, and drainage structures are completed. In this way, minimum sections of road are caught unprotected against rain, thus reducing the requirement to reconstruct damaged roads. No action by USARPAC or DA is recommended.

C. Reference item concerning "Quality Control", page 15, paragraph 14b. Concur. The staff of the Central Materials Testing Laboratory has been increased so that close observation can be maintained over the quality control efforts of subordinate units. The Quality Assurance School is attempting to train motivated technicians who will vigorously apply the concepts of quality control. No action by USARPAC or DA is recommended.

FOR THE COMMANDER:

*Charles M. Peterson*  
CHARLES M. PETERSON  
1LT, CF  
Act Asst Adjutant General

FOR OFFICIAL USE ONLY

22

6 APR 71

AVHDO-DO (25 Apr 71) 2nd Ind  
 SUBJECT: Operational Report-Lessons Learned of Headquarters 20th  
 Engineer Brigade for Period 1 November 1970 - 15 April 1971,  
 RCS CSFOR-65 (R3)

Headquarters, United States Army Vietnam, APO San Francisco 96375

TO: Commander in Chief, United States Army Pacific, ATTN: GPOF-PD  
 APO 96558

This Headquarters has reviewed the Operational Report-Lessons Learned for the period ending 15 April 1971 from Headquarters, 20th Engineer Brigade and concurs with comments of indorsing headquarters except as indicated below:

a. Reference item concerning "Assistance-in-kind (AIK) Funds and Daily Hire Local Nationals (DHNL)," page 13, paragraph 2a and 1st Indorsement, paragraph 3: Nonconcur. Funds expended now for Daily Hire employees are based on an hourly salary with the maximum wage at .30.VN\$ per hour and no additional benefits. Some units use as many as 15 to 170 Daily Hire employees per day, however, to convert these type employees to O'MA funded positions the following must be considered:

(1) Daily Hires are not required to have TS clearances.

(2) Daily Hires do not receive any other benefits, i.e., sick leave, annual leave, Tet bonus, separation allowances, death allowances, etc. The cost to the US forces if the conversion was authorized would be astronomical and security requirements questionable, plus to make direct hires they would undoubtedly be given higher hourly pay along with benefits.

(3) The unit should request an MDA change, with substantiation of the needs and requirements for the additional spaces but not be authorized a blanket authority to employ Direct Hires in lieu of Daily Hires. Unit has been so advised.

b. Reference item concerning "Maintenance - Drill Expendables," page 16, paragraph 2: Nonconcur. Requisitions for drill expendables are handled in the same manner whether processed as a supply item or a repair part. In the case of a supply item, the requisition is processed by a supply DSU. If the drill expendables are processed as repair parts, a maintenance DSU processes the requisition. The difference in procurement is due to varying response by the DSU involved.

24

AVHIO-DO (25 Apr 71) 2nd Ind

SUBJECT: Operational Report-Lessons Learned of Headquarters 20th  
Engineer Brigade for Period 1 November 1970 - 15 April 1971,  
RCS CSFOR-65 (V3)

The Army Master Data File held by the DSU's indicates category of  
supply that drill expendables fall under. Unit has been so advised.

FOR THE COMMANDER:



J. L. CHILDRESS  
CPT AGC  
ASSISTANT ADJUTANT GENERAL



25  
GPOP-FD (25 Apr 71) 3d Ind  
SUBJECT: Operational Report-Lessons Learned, HQ 20th Engineer  
Brigade, Period Ending 15 April 1971, RCS CSFOR-65  
(R3)

HQ, US Army, Pacific, APO San Francisco 96558 14 SEP 1971

TO: HQ DA (DAFD-ZA), WASH DC 20310

This headquarters concurs with subject ORLL as indorsed with  
the following comment:

Reference paragraph 3, Section II, page 14: Subject design was accepted as the standard for II Field Forces, Vietnam. The 1st Indorsement by U.S. Army Engineer Command Vietnam recommended in paragraph 4 that a standard design be included in applicable FM's and TM's by appropriate Department of the Army agencies. The design resembles Figure 2-28, FM 5-15, Field Fortifications, dated August 1968, but uses a rectangular sleeper pattern (vice radial) and 4" planking (vice 2"). Recommend that the report and the design be forwarded for review by the proponent agency for this manual (Commandant, U.S. Army Engineer School, Fort Belvoir, Virginia, 22060).

FOR THE COMMANDER IN CHIEF:

*M. L. Mah*  
M. L. MAH  
1LT, AGC  
Asst AG

**2. Lesson Learned: Commanders Observations, Evaluations and Recommendations:**

a. Baracamp None

b. Intelligence None

c. Operations

1) Proper Cleaning of Vehicles.

a) OBSERVATION: Due to the type of missions levied on unit, and the level of standards for appearance and maintenance requires all vehicles to be clean and clear of mud and dust.

b) EVALUATION: It was found that by constructing a "Y" made of one inch pipe with the proper compressor hose fittings welded to the two pipes on the top of the "Y", and a  $\frac{1}{2}$  inch reducer placed on the remaining end, that this requirement could be met very quickly and with a much higher level of efficiency. It is necessary to have a compressor of at least 80 cfm capacity and a water hose facility capable of being utilized with an air compressor hose. The "Y" receives compressed air and water at the same time which produces a much stronger force that thoroughly cleans all surfaces.

c) RECOMMENDATIONS: Although this system may already have been discovered by other units, the following is important information which may not be clearly understood by units utilizing this cleaning device. Insure that all using personnel clearly understand that they must shut the water source off first and approximately one minute later, they can turn the compressor off. If the sequence is reversed, the water will feed back through the air compressor itself. Although this does not seriously injure the internal parts of the compressor, it does induce unnecessary work to clear the compressor of the water prior to operating the equipment again. This is especially important in freezing weather as reversing the shut down procedures mentioned will seriously damage the compressor during weather that falls below the freezing point of water.

d. Organization None

e. Training

1) Experienced Crane Operators.

a) OBSERVATION: The type of mission requirement that the 93d Engineer Company (PB) receives in conjunction with the

equipment authorized has created a serious problem in the area of experienced crane operators. The amount of training on class 60 bridges each crane operator within the 7th Engineer Brigade has received varies from none at all to these few : fully trained operators. This lack of experience seriously hinders the construction of the class 60 bridge for both unit training missions and more seriously for company training and ORT's of the various units that the 93d Engineer Company (FB) supports.

b) EVALUATION: Due to the limitation of only one crane under the MATOE for this unit and the fact that at least two or more construction sites are required at all bridging sites when units train, the 93d Engineer Company (FB) cannot provide the experienced operators as required. The most critical construction phase is the installation of the ramp section which would normally take twenty minutes per shore with an experienced operator, and as much as forty-five minutes with an inexperienced operator. The overall safety profile is lowered when crane operators are utilized without any previous experience.

c) RECOMMENDATIONS: That all crane operators within each of the support battalions of the 7th Engineer Brigade be evaluated to determine their capabilities when working with class 60 bridging. If the individual operators involved in this evaluation fail to meet the accepted standards of operation, each man should receive an OJT period at garrison station to become familiar with the peculiarities of the class 60 bridge.

An additional recommendation is to insure that no unit within the 7th Engineer Brigade request company testing for class 60 bridging when it is necessary to provide the use of their organic cranes if the operators have not experienced at least one mission working with the class 60 bridge. If it is necessary to violate this recommendation, then at least provide a block of four hours for the inexperienced crane operator to work with the bridge prior to utilizing him on the bridge site. This recommendation would not apply to units who request the use of class 60 bridging for training purposes. When a unit trains, everybody is learning. A Company or smaller unit tests and ORT's are not intended to train individuals but rather to test the individual's ability to respond and his ability to remember his training and use it.

d) COMMAND ACTION: It is recommended that higher headquarters, to include VII Corps if necessary, apply whatever pressure is needed to insure that the current recommended changes to this unit's MATOE on crane authorizations be approved. This recommended change would authorize two cranes at level three.

29

## **2. Logistics**

### **1) Field Maintenance Facilities.**

a) **OBSERVATION:** With the variety of training sites in USAREUR, ninety percent which contain no provision for a maintenance facility, and considering the number of maintenance problems which can develop when a unit is in the field, it was decided that the 93d Engineer Company (FB) needed some type of a maintenance facility that would provide inspection and a working space under all of the assigned vehicles utilized to provide the required bridge for support missions.

b) **EVALUATION:** Since the construction of a pit would not only cause maneuver damages, but also requires an effort superior to the unit's organic ability, another solution was devised with acceptable results. The 93d Engineer Company (FB) is authorized and has on hand four complete sets of 135 class sixty bridge. Each set has a near and a far shore ramp section. In the history of the 93d Engineer Company (FB), as well as it can be traced, a mission requiring all eight ramp sections has never been levied on this unit.

c) **RECOMMENDATION:** By carrying to the field one additional far shore ramp section and placing this section on a level ground area and leaving the center filler panel out, all organic vehicles could be inspected, serviced, and maintained with a higher morale developed by the troops and a more efficient job due to the "tread way pit" the ramp section simulated.

### **2) Proper Utilization of all Vehicle Transfer Systems.**

a) **OBSERVATION:** Instructions to all vehicle operators involved with the operation of a vehicle that has a transfer system (high and low) to not use the transfer gears while on open road operations will prevent many problems.

b) **EVALUATION:** The most important factor here is the normal position of all transfer levers are such that while a piece of equipment is moving, an operator's position required to utilize the transfer case would prevent complete visual observation and thus prevent proper operation of the vehicle. The second area of consideration involves an experience factor on how to utilize the transfer system while in motion. Improper utilization of the transfer case would normally develop into some type of maintenance work on the vehicle which could have been prevented had the operator been experienced in the use of the transfer system.

c) **RECOMMENDATION:** The high transfer was intended for use on open roads as opposed to the low transfer for use on cross country traveling, not for speed shifting. Recommend that all operators be advised of this fact and strict supervision of the same be enforced.

30

3) Smooth shifting of Vehicles During Cold Weather. .  
Operations

a) OBSERVATION: During cold weather operation of any vehicle the immediate use of different gears can be eased by utilizing the transfer case on those vehicles having a transfer case during the warm up time of the vehicle prior to movement.

b) EVALUATION: By placing the transfer shift in neutral, then placing the gear shift in third gear, and releasing the clutch, the engine rpm is passed to the crankcase then to the gear housing. Because the lubricant that is used in the gear housing becomes very thick and sluggish during cold weather, shifting is very difficult in the early stages of vehicle operation unless the lubricant is brought to its normal operating viscosity.

c) RECOMMENDATION: To insure smooth operation of all vehicles having a transfer case, operators should be instructed to utilize the neutral position for the transfer and place the gear shift in a medium speed. This causes the gears in the gearbox to revolve without moving the vehicle. This motion creates enough usage and heat in two or three minutes to insure smooth shifting from gear to gear in cold weather.

g. Communications

1) Control of Convoy Vehicles.

a) OBSERVATION: When convoys in excess of three vehicles are necessary to move either equipment or personnel from point A to point B the use of all organic radio equipment has proven to be the most helpful factor in reducing vehicular accidents, control of all elements, and insure the arrival at the destination by the most direct route.

b) EVALUATION: By placing any AN/PRC 25 radios available in vehicles at an interval of not more than four vehicles, and having vehicles with an AN/GRC 46's at the head and end of each 25 vehicle serial, a much tighter control can be established and maintained.

c) RECOMMENDATIONS: Recommend that all convoy procedure SOP's or directives include guidance to commanders to utilize all organic radios for convoy control. Radio contact throughout the convoy and each serial provides a more efficient means of recovering both disabled vehicles, vehicles that made a wrong turn, and notification to at least a part of the vehicles involved of a slow area, an accident, or an upcoming turn off the main route.

h. Material

1) Bailey Bridge Loading Plans.

a) OBSERVATION: TM 5-277, dated August 1966, recommends that 2-80' double-single panel bridges be loaded so that the erection equipment is distributed over four 5 ton dump trucks and one 2½ ton pole trailer. The other 6 dump trucks transport panels, stringers, and chess. Panels, stringers, and chess are generally segregated on each truck.

b) EVALUATION: This unit finds it more efficient to load one bay of double-single panel bridge plus two panels, on eight 5 tons per bridge platoon. Each platoon also has 5 tons to carry the launching nose, site layout, and tools and small parts and two 5 ton dump trucks each carrying two bays of ramp equipment. Transoms and footwalk are each carried separately on 2½ ton pole trailers.

The advantages of this loading plan are as follows:

1) The number of trucks needed for any given bridge support mission can easily be determined simply by taking the corresponding number of bay loads plus the five miscellaneous loads that are needed regardless of length of bridge required.

2) Since each bay load carries all the parts for that bay (except bolts, clamps, pins, etc.) missing items can be more easily spotted before leaving home station for the bridge site and policing up bridge at end of commitment.

3) This bay load concept allows maximum amount of bridge to be unloaded by crane since each load is a stable bundle by itself. Stringers, chess, ribbands, sway braces, bracing frames, and rakers need not be hand loaded into the dump bed. Two slings enable a crane to load and unload the materials quickly and safely.

4) The loads are simple to stack even for inexperienced personnel, which saves loading time.

5) The site layout truck carries all the components which tends to prevent parts from being lost or misplaced. A canvas is placed on the vehicle to prevent the cribbing from becoming unduly wet and to prevent rollers from rusting.

6) One 5 ton is used as a tool and small parts truck which is equiped with a wood shed constructed with troop labor. Delicate equipment such as measuring tapes, string carpenters levels, wrenches, etc are kept locked up when not in use. This truck also carries safety pins, bracing frame bolts, rope, panel markers, hammers, etc. which tend to get lost if not tightly controlled. This truck also is used for the storage of other delicate or small items as needed.

7) This loading plan allows each platoon to carry 80 ft of double-single bridge with launching nose and combining both bridge platoons to meet the requirements of 130 ft of double-double with launching nose.

22

c) Since all the bay loads and ramp loads are independent of each other the loss of one load, or sometimes two, does not adversely effect the construction of the panel bridge.

2) **RECOMMENDATION:** That this bay loading plan be adopted either as a primary or alternate loading plan for panel bridge companies.

1i. Other

1) **Bailey Bridge Site Layout Procedure.**

a) **OBSERVATION:** TM 5-277, dated August 1964, only recommends one specific method of locating the rollers (rocking, plain, and construction) (in the site layout and that is with a template, most units do not have a template, therefore are left with no dependable site layout procedure.

b) **EVALUATION:** As an alternate site layout method this unit suggests using 2 strings that run parallel to the center line string which would be used to locate the rollers both horizontally and vertically. Each string would be offset 7' 8" and parallel from the center line. After a roller has been placed on the highest point, the string on that roller should be leveled. Then two parallel strings allow the site layout crew to easily determine the amount of digging and/or cribbing that is necessary. It also permits a final check on alignment of rollers before bridge construction.

c) **RECOMMENDATION:** That this site layout procedure (see Figure #1) be adopted as an alternate method to the template system as suggested in TM 5-277.

2) **Distance Perception Between Vehicles Traveling in Opposite Directions on Narrow Roads.**

a) **OBSERVATION:** All vehicles normally utilized in convoys by USAREUR units being OD, and with the variety of road widths in USAREUR together have caused problems when military vehicles pass each other.

b) **EVALUATION:** It was decided by this unit that painting all west coast mirror assembly plates a striped yellow, could prevent part of the problem. Traveling at an angle of less than 5 degrees at a distance in excess of one hundred feet, the mirror assembly is clearly visible. At an angle more than 5 degrees or a distance less than 100 feet, the mirror assembly blends with the remainder of the vehicle which is also OD in color and the distance that the mirror extends outward from the vehicle becomes difficult to estimate by an oncoming driver. With the extension distance from the outer most part of the mirror assembly to the actual side of the vehicle extending twelve inches, a clearance distance of two feet between vehicles would involve a little destruction of mirror assemblies.

23

e) **RECOMMENDATION:** Recommend that only the metal backing of the mirror itself need be painted, as this is the most extended part of the entire mirror assembly. One inch strips, yellow or white, at a forty-five degree angle to the sides of the mirror were found to suffice.

3. Headquarters, Department of the Army Survey Information.  
Name.

  
E. T. SCOTT  
Commanding



35

LETTER-C (24 May 1971) 1st Ind  
 SUBJECT: Operational Report - Lessons Learned, 563d Engineer Battalion,  
 Period Ending 30 April 1971, RC3 CSFOR-65 (R3)

DA, HQ, 7th Engineer Brigade, APO 09154

16 June 1971

TO: Commanding General, VII Corps, ATTN: JETSEN, APO 09107

This Headquarters has reviewed the basic report and concurs with all observations and recommendations with the following additions:

a. Para 2e: This Headquarters concurs that float bridge units should be authorize a minimum of two cranes as the units can normally expect simultaneous employment at more than one bridging/rafting site. The combat engineer battalions (who normally assemble the bridge) lack sufficient cranes to adequately support multiple bridge/raft assembly sites. A recommended change to the MTOE has been sub-titted to the proponent unit.

b. Para 2f (1): The training sites normally used for bridge training are field sites along rivers or at ponds where no permanent or semi-permanent facilities exist. This Headquarters concurs in the stated use of ramp sections so long as mission support does not require their use.

c. Para 2h (1): The Headquarters concurs in the loading method and recommends its adoption Armywide. The dry load plus two panels described in para 2h (1)(b) is carried on each of eight 5 ton trucks within each platoon.

  
 COLONEL, USA  
 Commanding

NOT REPRODUCIBLE

32

36

WTSOC-0 (24 May 1971) 2d Ind  
SUBJECT: Operational Report - Lessons Learned, 563d Engineer Battalion,  
Period Ending 30 April 1971, RCS-CSFOR-65 (R3).

DA, Headquarters, VII Corps, APO 09107 16 JUL 1971

TO: Commander in Chief, United States Army Europe and Seventh Army,  
(ATTN: AEAGC-TU) APO 09403

This headquarters has reviewed the basic report and first indorsement and concurs with all observations and recommendations with the following additions and exceptions:

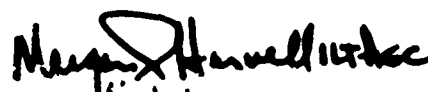
a. Para 2e(1): Crane operator training discussed in this section is one that belongs to company level and would not have application outside the 563d Engr Bn. The responsibility for trained operators rests with the company commander who should initiate appropriate OJT programs as required.

b. Para 2f(3): This headquarters does not concur with placing transfer shifts in neutral with transmission in third gear during warm-up periods in order to warm the lubricant as recommended in the basic report. The provisions of applicable vehicle technical manuals prescribe operating instructions during cold weather, and if followed will preclude shifting difficulties and damage to equipment power train assemblies. Placing the transmission in gear creates an additional load on a cold engine. Normal heat transfer from the engine to the neutral transmission is sufficient if warm-up time is as prescribed in the TM.

c. Para 2g(1): This headquarters concurs with recommended use of radios for convoy control. Units utilizing this technique should coordinate moves out of normal areas of operation with their next higher headquarters to establish proper frequencies.

d. Para 2i(2): This headquarters concurs with marking the back of rear view mirrors. It is further recommended that mirrors be marked with 3-M yellow or silver reflective adhesive tape which would allow for easy removal in event of hostilities.

FOR THE COMMANDER:

  
ALVA J. NESTER, JR JH  
CPT, AGC  
Asst AG

37

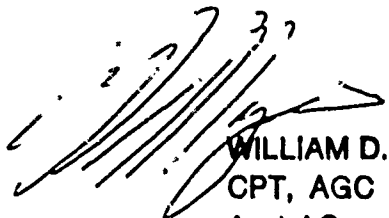
AEAGC-TU (24 May 71) 3d Ind  
SUBJECT: Operational Report-Lessons Learned, 563d Engineer Battalion,  
Period Ending 30 April 1971, RCS CSFOR-65 (R3)

Headquarters, United States Army, Europe and Seventh Army, APO New York  
09403 7 AUG 1971

TO: Assistant Chief of Staff for Force Development, Department of the Army,  
Washington, D.C. 20310

1. Forwarded in accordance with AR 535-15.
2. Recommendations found in paragraph 2h (1) and 2i (1) of basic correspondence are recommended for possible Army wide application.

FOR THE COMMANDER IN CHIEF:

  
WILLIAM D. MAPES  
CPT, AGC  
Asst AG

34

39

JGJL

SUBJECT: ORLL, 92d AEC, period ending 30 April 1971, RCS CSFOR - 65 (R3)

SECTION II, LESSONS LEARNEDa. PERSONNEL. Noneb. INTELLIGENCE. None

NOT REPRODUCIBLE

c. OPERATIONS.(1) Expediting Construction

(a) Observation. On a recent project, six concrete block buildings had to be constructed at least through roof level before the monsoons arrived. With the completed roofs on each building as a goal, the concrete block work upon which the roofing was dependent, had to begin as soon as possible.

(b) Evaluation. A system of placing the perimeter footing for each building independently from the floor slab had to be developed in order for block work to begin early.

(c) Recommendation. Rather than pouring the perimeter footing and the building floor slab monolithically, the footing that would receive the loads of the block wall and roof could be poured before any work on the floor slab began. With this footing placed, the exterior block work could start. While the block was progressing toward roof level, the floor slab could be prepared and poured utilizing the walls for forming. Finally with all block completed, the desired roof could be constructed.

(d) Command Action. The advantages of an independent building footing were rewarding. The exterior block work, on a separate footing, began early and was accomplished concurrently with the underslab electrical and plumbing work, this meant that the slab would not delay the critical block work as long as had been originally thought. This approach was repeated throughout all the six buildings and resulted in all roofing work being completed six weeks ahead of schedule well before the rainy season.

(2) Placing Floor Slabs

(a) Observation. By pouring an independent building perimeter footing and expediting concrete block placement, a problem of how to place the floor slabs quickly and with a minimum of manpower emerged.

(b) Evaluation. Instead of placing concrete floor slabs in long, narrow rectangular strips ten to twenty feet wide, larger nearly square sections would be poured using a unique system of movable screed pipes.

(c) Recommendation. Preparation of the slab area could be done with two distinct time and labor saving differences. The first difference is that there is no need for perimeter forms. The second difference the

36

1610-OP

SUBJECT: CRLL, 925 EOC, period ending 30 April 1971, HCS . CBFCK - 65 (K2)

40

placement of small twelve inch sections of U-shaped wickets. These pickets can be cut and shaped to receive two inch galvanized pipe in ten foot grids at precisely the elevation required to position the screed pipe at finish floor level. With the picket supports so placed, the two inch screed pipes can be positioned ten feet apart, reducing the screed board length and saving the labor required to handle a larger twenty foot screed board. As the concrete gradually filled the slab area and is screeded off in ten foot increments, the two movable screed pipes can be repositioned from one side to the other. Thus, the slab section could be poured in a nearly square configuration continuously with a minimum of effort. The finishing would proceed normally and when the slab section was complete.

(d) Command Action. Recommendation was implemented and all buildings had high quality floor slabs poured at a considerable saving over the conventional method.

d. ORGANIZATION. None

e. TRAINING. None

f. COMMUNICATIONS. None

h. MATERIAL.

NOT REPRODUCIBLE

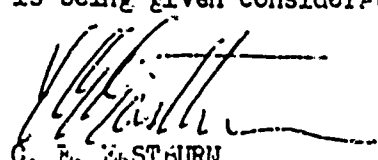
(i) Expediting of Construction Material.

(a) Observation. Present supply procedures and direct support units do not provide for a supply system that is responsive to the needs of an engineer construction unit.

(b) Evaluation. The problem has been partially solved by aggressive Unit and Group supply personnel. Techniques have been developed to obtain rapid requisition status and for locating supplies not listed as on-hand by the Depot stock records.

(c) Recommendation. Designated Group as a direct depot customer with direct support responsibility to its subordinate Battalions for equipment and construction material. Mission orientation and mission knowledge with supply authority would create a supply support responsive to the engineer unit's needs and mission.

(d) Command Action. Recommendation is being given consideration.

  
C. E. EASTBURN  
LTC, CE  
Commanding

FOR OFFICIAL USE ONLY

41  
EGB-OP (20 May 71) 1st Ind  
SUBJECT: Operational Report--Lessons Learned, 92nd Engineer Battalion  
(Construction), Period Ending 30 April 1971, RCS CSFOR-65(R3)

DA, HQ, 159th Engineer Group, APO 96491

29 May 1971

THRU: Commanding General, USAECV, ATTN: AVCC-MO, APO 96491  
Commanding General, USARV, ATTN: AVHDO, APO 96375  
Commander-in-Chief, USARPAC, ATTN: GPOP-DT, APO 96588

TO: Assistant Chief of Staff for Force Development  
Department of the Army  
Washington, D.C. 20310

1. The significant activities and lessons learned have been reviewed and are an acceptable description of the unit's operations this period.
2. Reference Lesson Learned "Expediting Construction," p 15, paragraph c1. Concur. Re-evaluation of construction sequences is often advisable due to nature of the Vietnam monsoons. This particular re-evaluation resulted in considerable savings in time and manpower. Application to similar modes of construction by DA is recommended.
3. Reference Lesson Learned "Placing Floor Slabs," p 15, paragraph c2. Concur. Application to similar modes of construction by DA is recommended.

FOR THE COMMANDER:

  
S. C. WATERS  
CPT, AGC  
Adjutant

42  
AVCC-FO (20May71) 2nd Ind

SUBJECT: Operational Report - Lessons Learned, 92 Engineer Battalion  
(Construction), Period Ending 30 April 1971, RCS CSFOR - 55 (R3)

Hq US Army Engineer Command Vietnam, AFO 96491

1 JUN 1971

TO: Commanding General, US Army Vietnam, ATTN: AVHDO-DO AFO 96375

1. The significant activities and lessons learned have been reviewed and are an adequate reflection of the unit's operation during this period.

2. Reference item concerning "Placing Floor Slabs", page 15, paragraph c(2). Concur. This should be reviewed by the appropriate Engineer School Department to insure it is adequately covered in current manuals and class instructions.

FOR THE COMMANDER:

*Charles M. Peterson*

CHARLES M. PETERSON

1LT, CE

Act Asst Adjutant General

43  
AVHDO-DO (20 May 71) 3rd Ind

29 SEP 1971


SUBJECT: Operational Report-Lessons Learned, 92d Engineer Battalion  
(Construction), period ending 30 April 1971, RCS CSFOR - 65 (R3)

Headquarters, United States Army Vietnam, APO San Francisco 96375

TO: Commander in Chief, United States Army Pacific, ATTN: GPOP-FD,  
APO 96558

This Headquarters has reviewed the Operational Report-Lessons Learned for the period ending 30 April 1971 from Headquarters, 92d Engineer Battalion (Construction) and concurs with comments of indorsing headquarters.

FOR THE COMMANDER:

  
R. L. CHILDRESS  
CPI AGC  
ASSISTANT ADJUTANT GENERAL

Cy furn:  
92d Engr Bn  
USAECV




44  
GPOP-FD (20 May 71) 4th Ind  
SUBJECT: Operational Report-Lessons Learned, HQ 92d  
Engineer Battalion (Const), Period Ending  
30 April 1971, RCS CSFOR-65 (R3)

HQ, US Army, Pacific, APO San Francisco 96558 1 NOV 1971

TO: HQDA (DAFD-ZA), WASH DC 20310

This headquarters concurs in subject report as indorsed.

FOR THE COMMANDER IN CHIEF:

  
L.M. OZAKI  
CPT, AGC  
Asst AG

11/5  
UNCLASSIFIED

Security Classification

## DOCUMENT CONTROL DATA - R &amp; D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

1. ORIGINATING ACTIVITY (Corporate author)

HQ, DAFO . DA, Washington, D. C. 20310

2a. REPORT SECURITY CLASSIFICATION

FOUO

2b. GROUP

3. REPORT TITLE

Operational Report - Lessons Learned, Hqs. 299th Engr Bn, 20th Engr Bde, 593d Engr Bn, 92d Engr Bn Period Ending 30 Apr 1971 (U)

4. DESCRIPTIVE NOTES (Type of report and inclusive dates)

Experiences of unit engaged in counterinsurgency operations,

5. AUTHOR(S) (First name, middle initial, last name)

CG, 20th Engr Bde, CO, 299th Engr Bn 593d Engr Bn 92d Engr Bn

6. REPORT DATE

30 December 1971

7a. TOTAL NO. OF PAGES

7b. NO. OF REFS

8a. CONTRACT OR GRANT NO.

a. PROJECT NO.

N/A

c.

d.

8b. ORIGINATOR'S REPORT NUMBER(S)

711226 711100

711047

711161

8c. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)

10. DISTRIBUTION STATEMENT

11. SUPPLEMENTARY NOTES

N/A

12. SPONSORING MILITARY ACTIVITY

DAFO , DA, Washington, D. C. 20310

13. ABSTRACT

DD FORM 1473  
1 NOV 66

UNCLASSIFIED

Security Classification